

Title (en)
HEAT EXCHANGER AND REFRIGERATION CYCLE DEVICE

Title (de)
WÄRMETAUSCHER UND KÜHLZYKLUSVORRICHTUNG

Title (fr)
ÉCHANGEUR THERMIQUE ET DISPOSITIF À CYCLE DE RÉFRIGÉRATION

Publication
EP 3534103 A4 20200226 (EN)

Application
EP 16920027 A 20161028

Priority
JP 2016082072 W 20161028

Abstract (en)
[origin: EP3534103A1] A heat exchanger that is supplied with air by a fan includes a fin that is plate-shaped, a first heat transfer tube that is flat and extends through the fin, and a second heat transfer tube that is flat and extends through the fin and is disposed at a distance from the first heat transfer tube in a gravity direction. The first heat transfer tube has a first upwind end located upwind and a first downwind end located downwind. The second heat transfer tube has a second upwind end located upwind and a second downwind end located downwind. The fin has an upwind fin end and a downwind fin end. Where the first upwind end and the second upwind end are connected by a first imaginary line and the first downwind end and the second downwind end are connected by a second imaginary line, the fin has an upwind fin region defined by the upwind fin end and the first imaginary line and a downwind fin region defined by the second imaginary line and the downwind fin end. A dimension of the upwind fin region is larger than a dimension of the downwind fin region in a passing direction.

IPC 8 full level
F28F 1/02 (2006.01); **F25B 39/02** (2006.01); **F28D 1/053** (2006.01)

CPC (source: EP)
F25B 39/02 (2013.01); **F28D 1/053** (2013.01); **F28D 1/05366** (2013.01); **F28D 1/05383** (2013.01); **F28F 1/02** (2013.01)

Citation (search report)

- [XAY] JP H0791873 A 19950407 - HITACHI LTD, et al
- [YA] EP 2657638 A1 20131030 - LG ELECTRONICS INC [KR]
- [YA] WO 2009105454 A2 20090827 - LIEBERT CORP [US], et al
- [A] EP 2947411 A1 20151125 - TOSHIBA KK [JP], et al
- [A] WO 2016121123 A1 20160804 - MITSUBISHI ELECTRIC CORP [JP]
- [A] EP 2930456 A1 20151014 - MITSUBISHI ELECTRIC CORP [JP]
- [A] JP 2016176646 A 20161006 - JOHNSON CONTROLS HITACHI AIR CONDITIONING TECH (HONGKONG) LTD
- See references of WO 2018078800A1

Cited by
EP4328534A4; US11578930B2; CN114450546A; EP4040084A4

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 3534103 A1 20190904; EP 3534103 A4 20200226; EP 3534103 B1 20201223; JP 6701371 B2 20200527; JP WO2018078800 A1 20190624; WO 2018078800 A1 20180503

DOCDB simple family (application)
EP 16920027 A 20161028; JP 2016082072 W 20161028; JP 2018547032 A 20161028